THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

Volume XXIV Number 9

May 15, 1940

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Volume XXIV May 15, 1940 Number 9

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D. G. Pletsch reports that psyllid yellows of potato was much reduced in importance in Montana in 1939, page 173; on the other hand, according to H. E. Morris, page 173, root rots caused almost total failure of the crop in the area where psyllid yellows had been so destructive in 1938.

Internal discoloration and net necrosis of seed potatoes are reported from Massachusetts by O. C. Boyd, and from New York by H. H. Campbell and R. G. Palmer, page 175.

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KNOWN RANGE OF PERSIMMON WILT IN 1939

Bowen S. Crandall

The Cephalosporium wilt of American persimmon, Diospyros virginiana, was first reported in 1937 from Tennessee 1,2/ and, after scouting during 1938, was found in six Southeastern States 3/. During 1939 the States of North Carolina, South Carolina, and Kentucky, parts of Arkansas and Louisiana, and parts of eastern Texas and eastern Oklahoma were scouted for this disease. Additional observations when opportunity offered were made in Tennessee, Mississippi, Alabama, and Georgia. In these States, in which the disease occurred in 1938 or earlier, additional outbreaks not previously found were located. In addition, wilt spots, apparently of 1939 origin, were located in Mississippi, the Carolinas, and Texas 4/; some of these were outside the area previously known to be occupied by the disease.(Fig. 1).

The disease is characterized, internally, by fine brownish black streaks in the wood; and, externally, by a sudden wilting of the leaves, followed by defoliation, first of the upper branches and eventually of the entire tree. Occasionally a tree carrying an infection from the preceding year will leaf out in the spring with small, chlorotic leaves. These gradually droop and fall during the early summer. Infected trees usually die by late summer and large quantities of salmon-pink spores of the causal fungus, Cephalosporium sp., are produced between bark and wood. Abundant production of spores, typical in color, also occurs in cultures of the fungus on artificial media after a week or ten days.

The Asiatic persimmons, Diospyros lotus and D. kaki, are apparently highly resistant to, although not immune from, the disease 5/.

Samples of wood from trees suspected of having the disease, or cultures from such trees, may be sent to the Division of Forest Pathology, U. S. Department of Agriculture, at the School of Forestry, University of Georgia, Athens, Georgia, for diagnosis or confirmation.

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2/ Crandall, Bowen S. Persimmon wilt. Plt. Dis. Reporter 21: 338. Oct. 1, 1937.

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5/ Beattie, R. Kent, and Bowen S. Crandall. Disease attacks the persimmon. Amer. For. 45: 120-121, 124. 1939.

(Division of Forest Pathology, U. S. Bureau of Plant Industry).

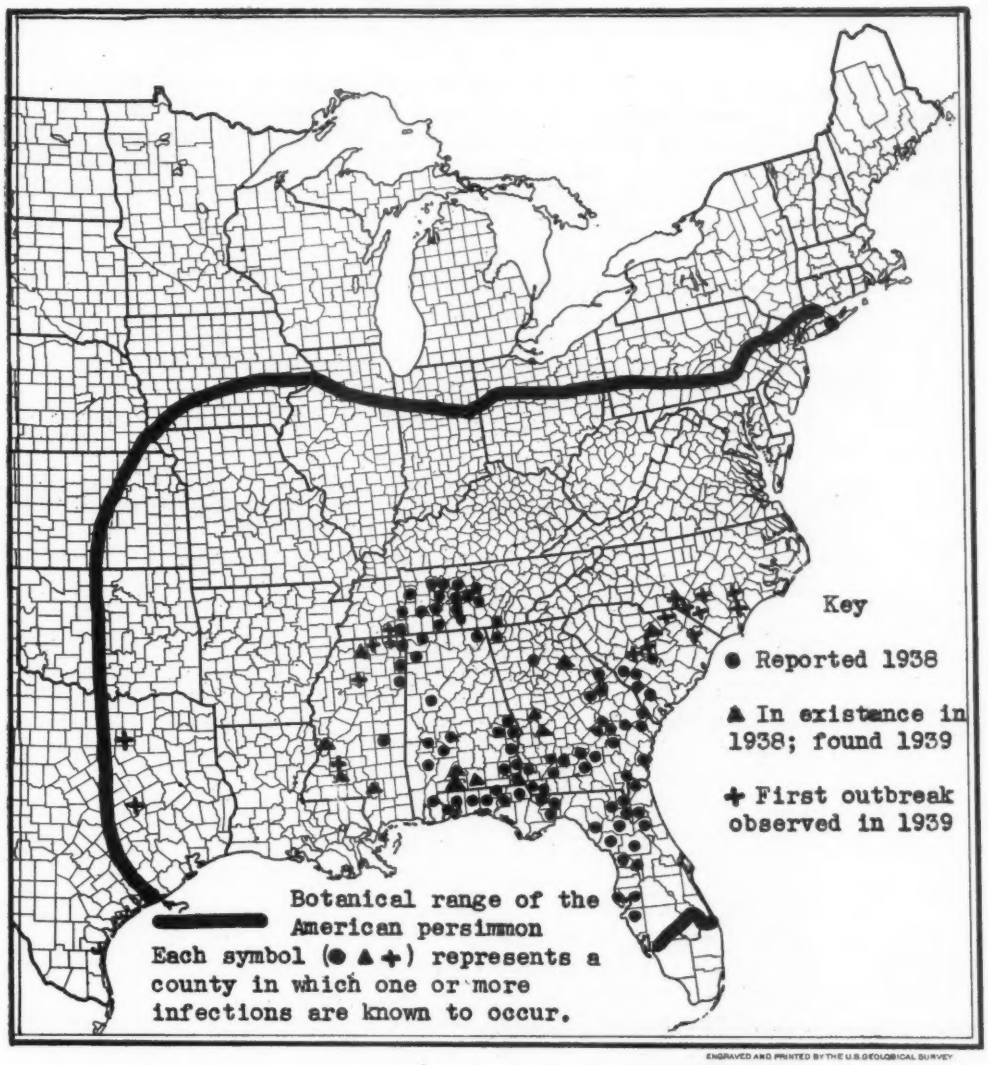
Key
● Reported 1938
▲ In existance in 1938; found 1939
✚ First outbreak observed in 1939
Botanical range of the American persimmon
Each symbol (● ▲ ✚) represents a county in which one or more infections are known to occur.
ENGRAVED AND PRINTED BY THE U.S.GEOLOGICAL SURVEY

Figure 1. Areas known to contain persimmon-wilt infections at the close of the 1939 scouting.

THE SPECIES OF THE GENUS PSEUDOPERONOSPORA AND THEIR RECORDED HOSTS

G. R. Hoerner

Mycologists are not in complete agreement as to either the taxonomic or nomenclatorial validity of the genus or its species. However, the generally recognized species of the genus Pseudoperonospora Rostowzew (13) with the hosts on which they have been reported are listed herewith in alphabetical order. The numbers in parentheses refer to literature cited.

Pseudoperonospora cannabina (Otth) Hoerner on:
Cannabis sativa L. (9, 14)

Pseudoperonospora celtidis (Waite) G. W. Wilson on:
Celtis occidentalis L. (26)
Celtis sinensis Pers. (11)

Pseudoperonospora cubensis (B. and C.) Rostowzew on:
Bryonopsis laciniosa Naud. var. erythrocarpa Naud. (3,23,30).
Citrullus vulgaris Schrad. (3, 23, 27, 30)
Coccinea indica Wright and Arnold (3, 23, 30)
Cucumis angulatus Forsk. (30)
Cucumis anguria L. (3, 30)
Cucumis dipsaceus Ehrenb. (3, 23, 30)
Cucumis melo L. (3, 4, 23, 28, 29, 30)
Cucumis melo L. var. dudaim Naud. (3, 23, 30)
Cucumis sativus L. (3, 4, 13, 23, 27, 29, 30)
Cucumis sativus L. var. anglicus Bailey (3)
Cucurbita maxima Duch. (3, 30)
Cucurbita moschata Duch. (3)
Cucurbita pepo L. (3, 23, 30, 32)
Cucurbita pepo L. var. ovifera (L.) Bailey (3, 23, 29)
Cucurbita spp. (3)
Cucurbitaceae spp. (2, 30)
Echinocystis lobata (Michx.) T. and G. (3, 23)
Lagenaria vulgaris Ser. (3, 23, 30)
Melothria maderaspatana Cogn. (3, 23, 30)
Melothria scabra Naud. (3, 23, 30)
Momordica balsamina L. (3, 23, 30)
Momordica charantia L. (3, 23, 30)
Sicyos angulatus L. (3, 23, 30)
Trichosanthes anguina L. (3, 23, 30)

Pseudoperonospora elatostemae (Togashi and Onuma) Hoerner on:
Elatostema umbellata Bl. var. involucratum Makino (9, 25)

Pseudoperonospora erodii (Fuckel) G. W. Wilson on:
Erodium ciconium Willd. (12)
Erodium cicutarium L'Her. (12)
Erodium malachoides (Willd. (7)
Erodium spp. (31)

Pseudoperonospora humuli (Miyabe and Takahashi.) G. W. Wilson on:
Humulus japonicus Sieb. and Zucc. (8, 11, 22)
Humulus lupulus L. (1, 5, 6, 8, 11, 15, 17, 18, 19, 22, 31)
Humulus lupulus L. var. cordifolius Maxim (11, 22)
Humulus lupulus L. var. neo-mexicanus Nels. and Ckll. (8)
Urtica lyallii S. Wats. (10)
Urtica urens L. (20)

Pseudoperonospora portoricensis (Lamkey) Hoerner on:
Melia azedarach L. (9, 24)

Pseudoperonospora urticae (Lib. ex Berk.) Salmon and Ware on:
Humulus lupulus L. (20)
Urtica dioica L. (21)
Urtica urens L. (21)

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This list of literature cited is not intended as a complete bibliography. Only the more significant references are listed, largely to present authority for the species' names employed and to confirm the hosts with which they are reported to be associated.

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(Division of Drug and Related Plants, Bureau of Plant Industry, in cooperation with Oregon State Agricultural College).

POTATO PSYLLIDS AND PSYLLID YELLOWS IN MONTANA, 1939

D. G. Pletsch

An early season survey (June 19-27, 1939) revealed low populations of adult psyllids generally present east of the continental divide. The accompanying map includes points where negative, as well as positive, collections were made at this time. In spite of these findings in June, later reductions in yield from psyllid yellows were noted in only occasional fields in Yellowstone and Phillips Counties. A small garden plot was damaged in Gallatin County also. Thus, low yields of potatoes in Montana in 1939 were not generally traceable to psyllid infestations.

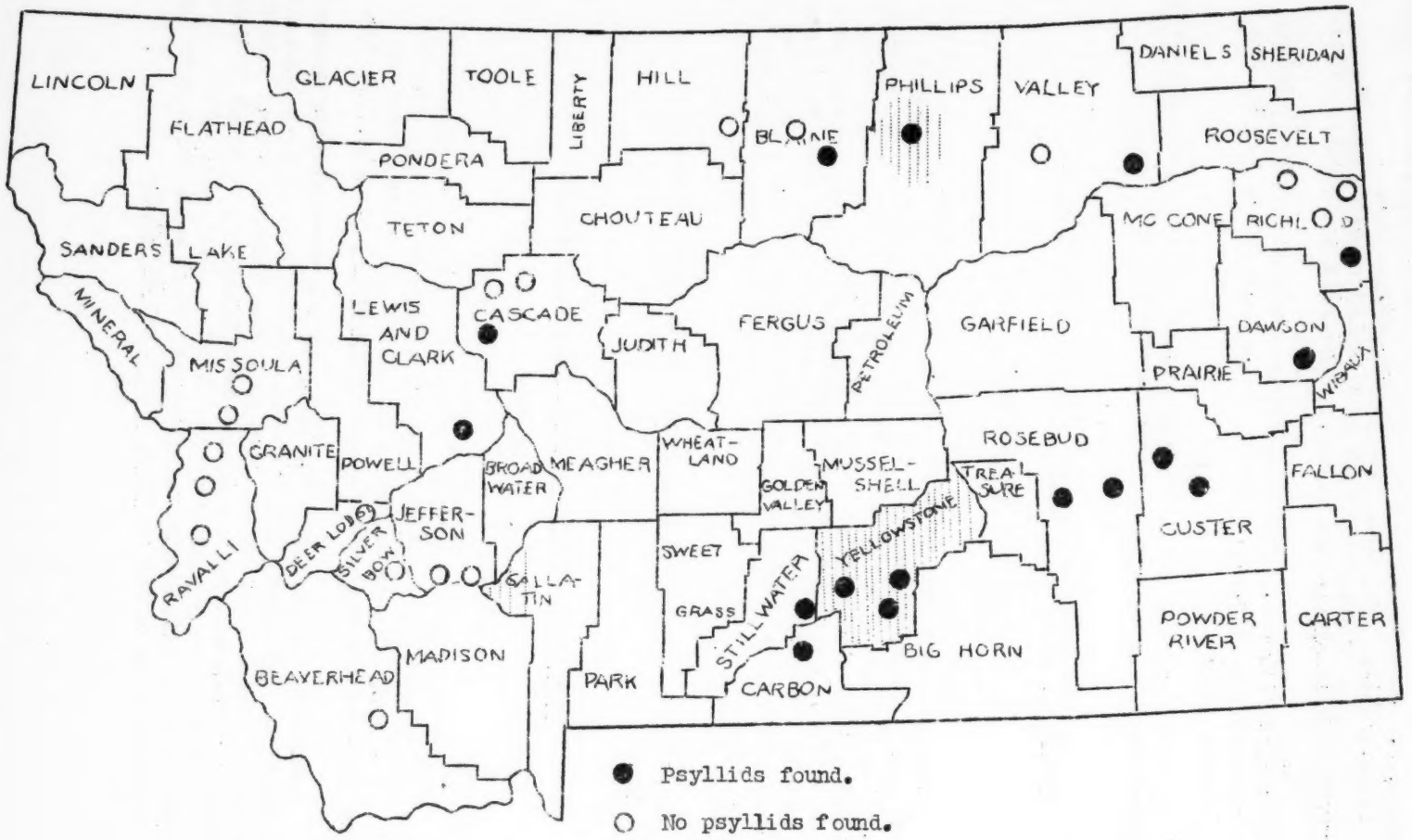
(Montana Agricultural Experiment Station, Department of Entomology).

ROOT ROTS OF POTATOES IN MONTANA IN 1939

H. E. Morris

In 1939 in Montana in about the same territory as the heavy infestation of psyllids in 1938 (PDR 23: 18-19) the potato crop was almost a failure. The principal cause was not psyllids, however, but various root-rotting organisms, mainly Rhizoctonia and Fusarium spp.

Between May 20 and June 20, 1939, in southern Montana, heavy rains occurred (7.5 inches precipitation at the Huntley Branch Station) followed by several weeks of below-normal temperature. Also, just before the rains started, many potato fields were irrigated in order to facilitate sprouting and emergence of the plants. The potato plants were weakened by these unfavorable environmental conditions which made them more susceptible to attack by Rhizoctonia and Fusarium.



Potato psyllid survey in Montana, June 19-27, 1939,

and areas showing later losses in occasional fields –

An early summer inspection of the fields revealed many missing hills, probably due to either root rots or seed piece decay. Many of the plants were severely dwarfed but did not die. These plants remained alive until the hot weather of late July or early August. At this time the leaves turned brown, curled, became dry and brittle, and the plants died.

At harvest time the tubers were small, only a comparatively few being of marketable size, and the yield was only 10 to 50 percent of normal in the heavy soils of this area. Potatoes planted in lighter soils with better drainage produced somewhat better crops.

(Montana Agricultural Experiment Station).

INTERNAL DISCOLORATION AND NET NECROSIS OF SEED POTATOES OBSERVED IN MASSACHUSETTS AND NEW YORK

MASSACHUSETTS: I have never seen so much "mahogany rot" in seed potatoes as occurs this spring in seed from Maine. It is most pronounced in Chippewas, although one severe case was observed in Earlaine and a mild case in Cobblers. It has not been observed in Green Mountains. This injury is reported to be due to chilling of the tubers in storage. Some tubers were so badly affected that 90 percent of the interior was involved. In what might be considered the more advanced cases, the shrinkage of the injured tissues resulted in the formation of cavities varying from 1/8 to 1/2 inch across. It is suspected that the more severely affected tubers will fail to heal over when cut for seed and will rot in the ground. One grower reported finding 10 percent of one lot of Chippewas affected with this "mahogany rot."

Two distinct types of internal browning are common in seed potatoes being planted in Massachusetts: typical leafroll net-necrosis and a yellowish-brown discoloration that extends only 3/4 inch or less into the tuber, into the pith as well as the vascular ring. Bacterial ring rot has not been observed. (O. C. Boyd, Massachusetts State College, May 3).

NEW YORK (Reports from New York State College of Agriculture, Department of Entomology and Plant Pathology, Weekly News Letter Concerning Insect Pests and Plant Diseases): Several complaints have been received from Nassau County growers in connection with seed which shows some reddish-brown internal discoloration. Authorities are not agreed as to what this condition may be, although it is believed that it is caused by storage of tubers at too cold temperatures. (H. H. Campbell, April 29).

One case of net necrosis on Pioneer Rurals has been discovered in Genesee County. Samples planted in the greenhouse at Ithaca indicate a fairly heavy infection of leafroll in this particular lot of seed, which was grown from certified seed. Judging from the experience of certification associations and our findings with this particular lot of seed, indications are that more leafroll will be apparent in the field this year than in any years previous. (R. G. Palmer, April 29).

SOME VEGETABLE DISEASES NEWLY REPORTED IN OREGON

RAMULARIA BLIGHT OF PARSNIPS: Plantings of parsnips being grown for seed purposes near Salem, Oregon, are severely diseased with a ramularia blight which seems to be due to Ramularia pastinacae. The lower leaves are affected with numerous small, angular, brown spots which are somewhat zonate. The damage from the leaf spot is insignificant compared with that caused by the spreading of the fungus to the stalk, where it forms long, black lesions. The fungus fruits sparsely on the leaf but very abundantly on the stalks. This is the first record we have of this fungus in Oregon and it is very likely that it was introduced on the seed. The spores from the active fruiting masses on the stalks are frequently more than two-celled. Two-celled spores are also abundant and may be considered typical for this Ramularia. (C. E. Owens and Frank P. McWhorter).

VEIN BANDING VIRUS (?) DISEASE OF PARSNIPS: A few plants of parsnips in commercial plantings have been observed near Salem, Oregon, that show a chlorotic condition on young foliage which develops along the veins and then expands into a blotch-like appearance that disfigures healthy leaves. The appearance seems entirely different from the description of western aster yellows on this plant given by Severin (Hilgardia 7, page 177, 1932). This note is to record the finding of a possibly unreported virus disease on Pastinaca sativa. (Frank P. McWhorter and C. E. Owens).

APPEARANCE OF ONION YELLOW DWARF IN OREGON FIELDS: Some fields of Golden Marvel onions being grown for seed purposes in the Willamette Valley show dwarfed, strongly mottled, yellow-striped plants which resemble yellow dwarf. Affected plants have been uniformly slower in sprouting from the bulbs than healthy plants. They continue decidedly dwarfed. In addition to permanent yellow streaks, the leaves are rumpled so that the pattern of plant-growth appears different than that of healthy individuals. Microscopic tests confirm the diagnosis that the disease is yellow dwarf. (Frank P. McWhorter and C. E. Owens).

(Oregon Agricultural Experiment Station, April 25).

TOMATO FRUIT POX IN ARKANSAS

Seth Barton Locke

What apparently is the same disease as described by Ivanoff and Young (Phytopath. 30: 343-345) and named "tomato fruit pox" by them, was observed during the summer of 1939 in an experimental planting of 11 commercial tomato varieties at the University farm, Fayetteville, Arkansas. Fourteen percent of the plants were affected, but only a few fruits on each plant developed the symptoms. The affected plants were scattered over the field without relation to soil differences or possible infection centers. Several attempts were made to isolate a causal organism without success. The weather was wet at the beginning and then very dry for the remainder of the growing season. It is thought that the disease might be related to water supply. This clue is strengthened by the fact that there was some relation between the incidence of fruit pox and blossom-end rot, as shown by the figures given below:

Variety	Percentage of blossom-end rot	Number of fruits showing pox
Louisiana Pink	0.6	1
Rutgers	1.4	15
Break O'Day	2.5	2
Bonny Best	3.4	2
Marglobe	3.9	9
Norton	4.8	3
Pritchard	5.1	31
Early Baltimore	5.4	7
Hastings' Everbearing		
Scarlet Globe	5.7	84
Newport	6.6	18
Glovel	12.7	27

(Arkansas Agricultural Experiment Station, April 29).

FRUIT DISEASES IN IDAHO, 1939

Earle C. Blodgett

The following list of fruit diseases has been compiled from the records of inquiries and of field observations on the occurrence and prevalence of these diseases during 1939. Most of the notes were made during the field trips of June 13-30 and September 5-19. These trips were not strictly of a survey nature and the following records were taken incidental to other work. Thus, the list is complete only in that it includes all diseases observed in 1939. The report is similar to those for 1936-1938.

Parasitic Diseases

1. Coryneum blight (Coryneum beijerinckii Oud.) of peach was widespread but of less importance this year. Severe twig cankering and fruit spotting was noted in localized areas. (May-September)

2. Coryneum blight (C. beijerinckii) of sweet cherry was of slight importance. (June)

3. Coryneum blight (C. beijerinckii) of apricot. Fruit and leaf spotting was general but not important. Serious twig cankering was noted on apricot for the first time in an orchard near Moscow. (June-August)

4. Coryneum blight (C. beijerinckii) of wild cherry, Prunus emarginata (Dougl.) Walp., was noted as severe near Myrtle. (June)

5. Coryneum blight (C. beijerinckii) of almond was noted for the first time in Idaho, near Whitebird. Leaf and fruit spotting were severe, with some twig cankering present. Isolations were made. (Sept.)

Coryneum lesions similar to those noted in 1938 on Italian prune fruits were recorded again this year, together with severe leaf spotting. Isolations of leaf tissues were unaccessful. (Sept.)

6. Powdery mildew (Podosphaera spp.) on sour cherry was general but of less importance this year. (June-Sept.)

7. Powdery mildew (P. spp.) on peach apparently is becoming of considerable importance. It was noted in several new orchards this year and was much more serious than usual. Severe leaf and fruit injury occurred in some orchards near Caldwell and Nampa, and the disease was noted at Emmett. Mildew was also troublesome on nectarines. (June-Sept.)

8. Powdery mildew (Sphaerotheca mors-uvae (Schw.) Berk. and Curt.) on gooseberry was of little importance this year. Noted at Genesee. (June)

9. Powdery mildew (S. humuli (D.C.) Burr. on raspberry was noted at Moscow and American Falls. (July)

Powdery mildew was recorded as severe on dewberry at Boise.

10. Powdery mildew (S. humuli) on strawberry; infection was noted in plantings at Kooskia. (June) It has been reported that mildew has eliminated strawberry growing in some localities in north central Idaho.

11. Fire blight (Erwinia amylovora (Burr.) Com. S.A.B.) of pears was of no consequence this year. Most of the trees seriously injured in 1938 made extensive growth and largely recovered. (June-Sept.)

12. Fire blight (E. amylovora) of apple was recorded as killing young Delicious trees at Grangeville and seriously affecting apple trees at Whitebird and Ahsahka. (June)

13. Crown gall (Phytomonas tumefaciens (S.&T.) Bergey et al.) of raspberry and blackberry noted on plants at Moscow. (April)

14. Crown gall (P. tumefaciens) of Boysenberry was extremely severe on the fruiting canes of plants at Fruitvale and Emmett. The galls were large and abundant, causing poor vigor and reduction of crop. (June-Sept.) This is the first reference in Idaho to aerial galls on Boysenberry.

15. Perennial canker (Glocosporium perennans Zeller and Childs) of apple was serious in more or less neglected Rome Beauty and Jonathan orchards near Coeur d'Alene and Post Falls. Twig, branch, fruit and trunk injury were common. Noted on McIntosh fruit at St. Maries. (Sept.)

16. Peach leaf curl (Taphrina deformans (Fcl.) Tul.) was of no consequence this year, only a few infected leaves being found on trees near Moscow, Riggins and Kooskia. (June)

17. Leaf spot of blackberry (tentatively identified as Septoria spp.) was severe on Lawton at Moscow. (July)

18. Anthracnose (Pseudopeziza ribis Kleb.) on wild gooseberry was collected near Edwardsburg. (June)

19. Spur blight (Mycosphaerella rubina (Pk.) Jacz.) on red raspberry was recorded near New Meadows. (June)

20. Strawberry leaf spot (M. fragariae (Tul.) Lindau) was mild this year. Some injury was noted on plantings near Orofino and Grangeville. (June-Sept.)

21. Blue mold rot (Penicillium expansum (Lk.) Thom) was common on apples and pears. One case of serious loss was found on stored, immature, Rome Beauty apples at Parma. (Jan.)

22. Rhizopus rot (Rhizopus nigricans Ehr.) was very serious on Mastadon strawberries near Boise. Rot on peaches was general but in one orchard near Caldwell, Idaho, loss was minimized greatly by a program of sanitation and disinfestation of boxes and equipment. Slight injury was recorded on apples. Considerable concern was aroused over a report of appreciable damage by Rhizopus on two cars of prunes. (Sept.)

23. Apple scab (Venturia inaequalis (Cke.) wint. was noted on McIntosh apples at Coeur d'Alene and St. Maries. Infection was mild. (Sept.)

Non-Parasitic Diseases

1. Winter injury: Practically no injury was noted although apricot and cherry are still showing effects from the 1935-36 winter.

2. Hail injury: Very severe damage to peach, apricot, and prune fruits occurred in sections of southern Idaho. (June, Sept.)

3. Black end of pear: This disease was of more concern this year. (Sept.)

4. Drought spot or gum spot of prunes: There was less injury noted this year than usual. (Sept.)

5. Cracking of sweet cherries: Damage in the Lewiston area was important but less severe than in 1938. (June)

6. June yellows of strawberry: New cases were noted and in some plantings the trouble tended to become serious. (June, Sept.)

7. Drought spot and corky core of apple: Severe injury was again found on apples in certain orchards near Post Falls, Coeur d'Alene and St. Maries. (Sept.)

8. Lime-induced chlorosis: This disease again caused a great deal of concern. It was common on most woody plants in certain areas of southern Idaho.

9. Heat injury: Some cases of damage to foliage resulted from high temperatures at Moscow during July. Grapes, apples, plums, and small fruits were affected.

10. Frost injury: Late spring frosts destroyed most of the peaches in scattered orchards and may have been partly responsible for a peculiar "second crop" condition. See miscellaneous diseases, 5. Peach (g) of this report. Frost bands were common on Douglas pears at Moscow.

Virus Diseases

1. Raspberry mosaic (types not separated): Several plantings noted where infection was 100 percent. Generally in the State these diseases are very severe. (June, July)

2. Raspberry leaf curl: A planting near Moscow was practically destroyed. The grower had noticed "a few odd plants" in 1938. (July)

3. Cherry mottle leaf. The complex suggested by this name is of considerable importance in Idaho. Besides the true mottle leaf there are associated several symptoms such as "a ring spot," "a mosaic," "a maple leaf," "a fruit deformity," "a lace leaf," and others. (June-Sept.)

4. Witches'-broom of strawberry: This disease has been recorded in Idaho for the first time. (June, Sept.)

Miscellaneous Diseases, Causes Undetermined

1. Strawberry: In several patches observed, cyclamen mite injury was much reduced this year. It was of interest that cat-facing of berries was of minor concern, even on everbearers which are very commonly affected. (June-Sept.)

2. Italian prune: (a) Leaf curl: the trouble was less evident during 1939. (b) Leaf spotting: this disease was present to about the same extent as in 1938. Some trees continued to show serious defoliation and lack of vigor. (c) A chlorosis and malformation of prune leaves has been prevalent in an orchard near Weiser for several seasons. The trouble is similar to that on the French prune recorded in 1936. (d) Attention has been called to an excessive amount of die-back in a 17-year-old prune orchard at Emmett. No satisfactory explanation has been made.

3. Apricot: (a) The leaf blotch condition noted in earlier years was recorded as less severe this year. (b) A leaf spotting very common in one orchard near Payette caused considerable concern. Symptoms were distinct from Coryneum blight. The lower surface of the leaves commonly showed what appeared to be air pockets or a separation of the epidermis from the other cells. (June) (c) An odd leaf and twig growth condition has persisted in an orchard at Weiser for two seasons. The leaves are very small and the twig growth is shortened, bushy, and slender. Some leaf chlorosis is visible. (d) The so-called physiological spotting of apricot fruit was general but less severe this year.

4. Cherry: (a) The complex associated with what has been suggested as pink fruit of sour cherry is still unsolved. There was apparently little change in prevalence of the disease where it has been observed. (b) A peculiar chlorosis of sweet cherry similar in many respects to rosette has been observed for 4 years. The trouble is becoming much more serious and has not responded to zinc treatments. (c) What is tentatively regarded as the yellow-red virosis on choke cherry [Prunus demissa] is very common.

5. Peach: (a) Transmission studies, observation, and additional circumstantial evidence indicates that a trouble similar to, if not identical with, the yellow-red virosis is widespread and very serious in the State. (b) The leaf spotting and defoliation of peach trees noted in earlier reports was severe in certain orchards again this year. The condition where noted has been associated with peaches growing on old apple land. (c) Leaves on one branch of a peach tree at Caldwell showed a brilliant yellow variegation suggesting the name calico. (d) The prevalence of peach wart, a condition noted previously,

has increased. The disease now is found on trees hitherto healthy and in some orchards a mild "warty fruit" condition is suggestive of a sudden, extensive spread. So far nothing is known regarding the nature of the cause. Fruit symptoms are the only evidence of the condition. (e) Several isolations have been made from cankered peach twigs and an Alternaria type fungus has consistently been isolated. The cankers are more superficial and usually confined to areas between the buds in contrast to Coryneum cankers. (f) In several orchards a distinct silvery appearance of the peach foliage was noticed. One of the orchards was almost blue-green in color. Growers considered high temperatures to be the cause. (g) In many peach orchards of southern Idaho two distinct sets of blooms were produced. The later blossoms set fruit but practically none of it matured. In general, the fruits were small, malformed with a deep-red suture, and there was no kernel in any of the several pits opened. The trouble caused considerable loss. (h) A trouble on peach trees at Moscow during the past season has caused considerable interest. Symptoms are characterized by a yellow spotting of the leaves and occasionally mottling of the bark of young wood. The leaves are not deformed and symptoms do not appear until rather late in the season. Although similar in some respects, the trouble is regarded by Dr. L. C. Cochran as distinct from asteroid spot (Cochran and Clayton, Phytopath. 28: 278-281. 1938). At Moscow the spotting is severe on trees that were normal in 1938, and is worse on trees affected previously.

6. Apple: (a) In an orchard at Coeur d'Alene one Jonathan apple tree showed fruit which was small, bumpy, and severely distorted. The leaves appeared normal, and there was no evidence that aphids had been responsible. (Sept.) (b) Large Delicious apple trees in an orchard near Caldwell showed an unusual condition of bark-splitting on the trunks and main branches. The grower insisted that severely cracked trees lost their vigor and finally died. The cracks were in bark of various ages and usually extended vertically. Some were 1/4 inch or more in depth.

7. Pear: A peculiar marginal leaf blight and (superficial)bark canker was noted on one specimen of Pound pear growing at Kooskia. (June)

8. Brambles: A canker and die-back disease of Youngberry and Boysenberry canes noted in 1938 but not reported was very severe this season. Dead areas appear on overwintered canes and in some cases girdle them, causing extensive dying-back. The cause of the trouble has not been definitely established.

(Idaho Agricultural Experiment Station, Moscow).

REPORTS ON THE DEVELOPMENT OF APPLE SCAB

NEW YORK: Hudson Valley-- In McIntosh leaves collected at Stanfordville, Dutchess County, May 3, 10 percent of the perithecia were in an early ascus stage, 42 percent had delimited spores but none colored, 19 percent had from 1 - 10 percent, 8 percent from 10-25 percent,

6 percent from 25-50 percent, and 25 percent over 50 percent, of the spores colored. About half of the leaves collected at random from the orchard were able to discharge some spores but only one-eighth of the leaves so collected were able to discharge spores abundantly. Leaves with mature spores discharged spores abundantly during the rains on May 2, 3, and 4. (D. H. Palmiter, Weekly News Letter, May 6).

Western New York: Examination of McIntosh leaf samples gathered at Ithaca, 11:00 A.M., April 21, showed some discharge of ascospores had occurred during the rain from about 10 percent of the perithecia. Leaf samples taken Friday afternoon, April 26, shot small numbers of spores within half an hour after being wet and placed over slides. The McIntosh fruit buds in this low vigor orchard were showing a slight green tip. Over half of the perithecia (56 percent) had the majority of their ascospores colored. Indications are for a moderately heavy spore discharge in the next rain at Ithaca.

A leaf sample sent from Monroe County on April 24 contained so few perithecia that a count was impracticable. No spores were shot from a portion of this sample over trap slides in 24 hours. (W. D. Mills, Weekly News Letter, April 29).

ILLINOIS: The first mature ascospores were observed on March 28 from material collected at Urbana. Maturity was gradual after this date, frequently being retarded by cold, dry weather. By April 15, many perithecia had 50 percent of asci with mature ascospores. By April 20, the perithecia were crowded with mature spores and a very heavy discharge occurred on April 22 to 23 following heavy rains.

The first infections were formed on the new leaves at Olney (Richland County) on May 1 and at Jerseyville on May 2. Apples were in full bloom on these dates in the latitude of St. Louis. A heavy rain on April 30 probably resulted in further extensive discharge of ascospores, since the perithecia still contained abundant spores on this date. (H. W. Anderson, University of Illinois).

ARKANSAS: Apple scab is just beginning to appear on apple foliage. (V. H. Young, May 2. Arkansas Agricultural Experiment Station).

BRIEF NOTES ON PLANT DISEASES

A SURFACE ROT OF SWEETPOTATOES IN TEXAS: Growers in several counties (Camp, Titus, Upshur, Wood, and Morris) in the northeastern section of Texas lost an estimated 10 percent of the 1939 sweetpotato crop due to a form of surface rot. The disease caused roundish to irregular, shallow, sunken areas, often becoming an inch or more in diameter, on the surface of the roots. The lesions, usually occurring on the bulging part of the root, did not extend into the flesh and the

affected skin appeared black in cross section. Cultures made with tissues from just beneath the surface of the affected areas showed a predominance of one or more species of Fusarium; however, certain of the symptoms seemed to differ considerably from those usually ascribed to F. oxysporum. It is of interest to note that in many cases the roots showed large lesions at time of digging, following a dry season with only 2 inches of rainfall during July, August, and September. With dry weather at digging time continuing until after the crop was in storage, losses of as high as 25 percent occurred on some lots of sweetpotatoes during the winter, following removal of all roots showing signs of the disease at digging. The disease was prevalent on the Porto Rico variety, which is the important commercial variety in the area concerned. Considerable variation was noted as to occurrence of the trouble among the different varieties at the Sweetpotato Investigations Laboratory at Gilmer. (A. A. Dunlap and R. E. Wright, Texas Agricultural Experiment Station, College Station).

DOWNY MILDEW ON SPINACH IN ARKANSAS: On April 25 S. B. Locke and I visited several large spinach plantings in the vicinity of Van Buren, Arkansas, in the Arkansas River bottoms. We found blue mold (downy mildew) [Peronospora effusa] just beginning to appear in a severe form in some of the spring-planted spinach, but practically none in the few fall plantings which had not yet been plowed up. Growers were cutting their spring crop as rapidly as possible in an attempt to get it to the canneries before blue mold rendered it unsaleable.

Conditions have evidently been favorable to diseases of the blue mold type in that locality. Cruciferous weeds were found to be severely attacked by a species of Peronospora and also by the common Albugo candida. (V. H. Young, Arkansas Agricultural Experiment Station, May 2).

MILDEW ON ONION IN NEW YORK: The first leaf of top set onions with fresh spores of Peronospora destructor on it was found May 3 in a back-yard experimental planting in Ithaca after 2 days of cold, foggy weather very favorable for sporulation. This is 10 days earlier than last year's appearance on the same planting, but two weeks later than in 1938 when mildew became so destructive on the commercial crop.

It would be unsafe to assume from this late appearance of the disease that it will be a negligible factor in onion production again this year, as it was last, because the onion crop is later than usual in being sown and we may not have another abnormally dry season from July on through harvest as we did last year. Much will depend upon the weather of the next month. (A. G. Newhall, Weekly News Letter, May 6).

PEACH LEAF CURL IN ARKANSAS: Prospects are that peach leaf curl [Taphrina deformans] will be of little importance in northwestern Arkansas this year. Although peach trees are in full foliage, only traces of leaf curl have been seen. (V. H. Young, May 2. Arkansas Agricultural Experiment Station).

WINTER INJURY TO PEACH TREES IN NEW YORK: Niagara County-- Winter injury to the ends of weak peach wood was found more generally on the gravelly soils which went into the winter very dry, also on young trees which had winter-injured heartwood. Observed one set of young trees interplanted among old peach trees which showed much injury, whereas close by where set by themselves there was very little trouble. Moisture competition may have been a factor. Perhaps it is all moisture deficiency instead of winter injury. It is definitely not spray injury. (J. G. Goodrich, Weekly News Letter, April 29).

DOWNY MILDEW AND BACTERIAL WILT OF ALFALFA IN VIRGINIA: Mr. H. L. Westover reports that an examination of alfalfa fields in the vicinity of Culpeper, Virginia, made on April 18, 1940, revealed a heavy outbreak of downy mildew (Peronospora trifoliorum De Bary) on alfalfa seeded in the fall of 1939. Some of the weaker plants were being killed by the disease but it did not appear that the stands would be thinned to a point where yields would be materially reduced. More vigorous plants were being attacked also, but the effects did not seem to be so serious. The cool, rainy weather of this spring has apparently favored the development of the downy mildew and it is probable that a few warm, dry days will stop its spread.

One plant with the foliage and root symptoms of bacterial wilt (Phytomonas insidiosa (McCulloch) Bergey et al.) was also found on this trip. Laboratory examination of this plant showed abundant bacterial extrusion from the severed water-conducting tubes in the root and stems, thus confirming the field diagnosis. (H. W. Johnson and C. L. Lefebvre, Division of Forage Crops and Diseases, U. S. Bureau of Plant Industry).

LITERATURE NOTES

"RED STELE ROOT ROT OF STRAWBERRY," by C. E. Temple (Trans. Peninsula Hort. Soc. 53 (1939) (Bull. Delaware State Board Agr. vol. 29, No. 5): 141-149. [1940]). The disease is caused by a species of Phytophthora and is apparently identical with the Lanarkshire disease of Scotland. Symptoms are described, with emphasis on distinctive symptoms that can be used for identification. In contrast to black root, which is a warm-weather disorder, red stele root rot is a disease of cool weather, and can only be identified unmistakably in the field during the cool season, more particularly from February to May. "The time to make the identification, therefore, is in the spring when the stele of the diseased root is red."

Distribution is principally by means of diseased plants, although the fungus may be carried in overflow water or contaminated soil.

Once it is established in a field the fungus remains viable for many years and large scale eradication is impossible.

"Red stele seems to be spreading rapidly. In the twenty years or more since it was first observed in Scotland, it has become established and widely distributed in the United States. It has been reported from the following states: California, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, New York, Oregon, Virginia, Wisconsin; and there is no doubt that it exists in many others. The fact that red stele has not been observed by a scientific worker in a state is no indication that the disease has not become established in that state. The nature of this disease is such that it is destined to reach all localities where strawberries are grown extensively unless suppression measures are adopted in all states having a strawberry nursery business."

Suppression of red stele is well under way in the Delmarva Peninsula, the nurserymen themselves urging extension of the regulatory service covering the diseases of strawberry. The procedure adopted and followed with good results consists largely in inspection and certification of strawberry fields grown for nursery purposes.

Indications from work in progress at various places are that it will be relatively easy to produce new strawberry varieties highly resistant to, or possibly immune from, red stele root rot, with quality equal to or better than those now grown.

POSSIBLE RELATION OF CERTAIN VIROSES OF STONE FRUITS: H. Earl Thomas, T. E. Rawlins, and K. G. Parker describe "A Transmissible Leaf-Casting Yellows of Peach" (Phytopath. 30: 322-328. 1940), which was first observed in Solano County in 1932 and has since been seen in several other counties in central California. Its characteristics are closely similar to those of the disorder reported from Idaho by Blodgett (PDR 21: 95. 1937) and to those of the "X" disease of the Northeastern States as described by Stoddard (Conn. Agr. Exp. Sta. Cir. 122. 1938), and the authors state that it is probable that the diseases are the same or very closely related. There is evidence also that the disease may be caused by the same virus as the buckskin disease of the sweet cherry.

APRIL WEATHER

(From U. S. Department of Agriculture Weather Bureau, Weekly Weather and Crop Bulletin for week ending May 7).

The weather of April 1940 was characterized by persistent coolness for the season in most sections east of the Rocky Mountains and by a continuation of above-normal temperatures in more western sections. Since the beginning of last winter every month has had above-normal temperature in most areas west of the Rocky Mountains, but in eastern sections there has been a decided trend to subnormal warmth.

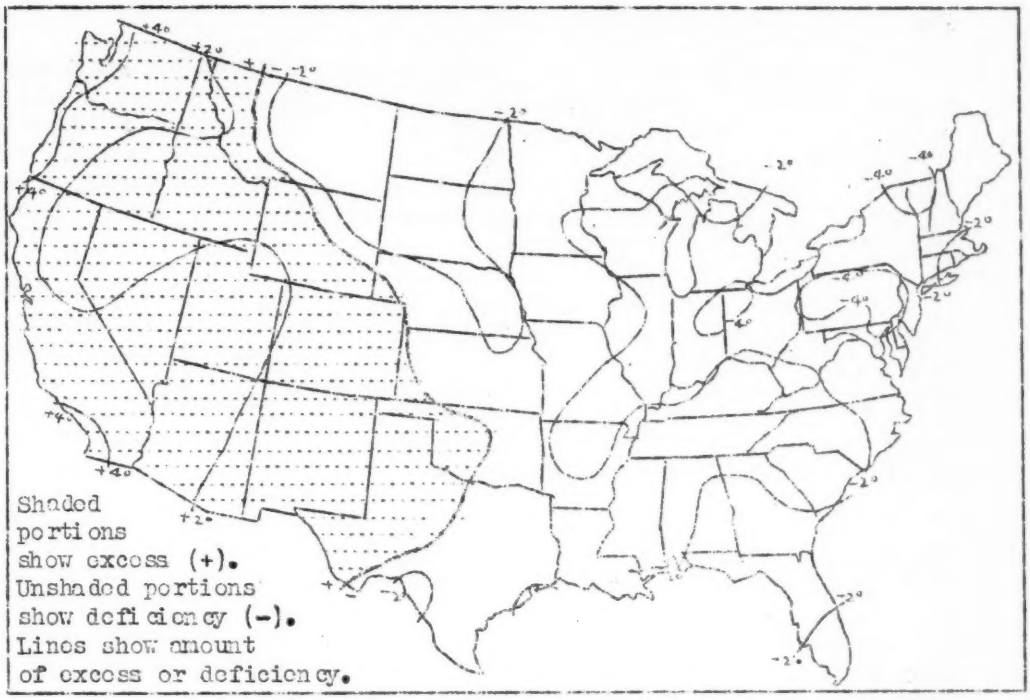


Fig. 1. Departure of mean temperature from normal for April 1940.

Fig. 2. Percentage of normal precipitation for April 1940.

Figure 1 shows that the mean temperature for April was below normal practically everywhere from the Great Plains to the Atlantic Ocean, the greatest minus departures appearing from the Ohio River northward and eastward where the monthly means were generally from 2° to about 4° subnormal. In the Southern States the minus departures were mostly 1° or 2°. From the Rocky Mountains westward the month averaged from 1° to 5° warmer than normal.

Figure 2 shows that April precipitation was decidedly heavy over much the greater portion of the country, although there were a few areas with large deficiencies. Over a belt extending from eastern Oklahoma and southeastern Kansas northeastward over the Ohio Valley to the North Atlantic States, the monthly totals were mostly from one and a half times to twice the normal amount; also similar excesses occurred in much of the northern Plains and in the northern Rocky Mountain States.

The markedly dry areas include the South Atlantic States, southern Texas, the west-central and southwestern Great Plains, and a considerable area in the far Southwest. The southwestern Great Plains had but little more than half the normal amount, while much of New Mexico and Arizona and southeastern California received even relatively smaller amounts. Some southwestern stations reported no measurable rainfall for the entire month.